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THE DEMOGRAPHIC AND BEHAVIORAL PATTERNS
OF VISITORS TO THE USAF MUSEUM

THESIS

Charlene V. Purtee, Captain, USAF

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THE DEMOGRAPHIC AND BEHAVIORAL PATTERNS

OF VISITORS TO THE USAF MUSEUM

THESIS

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Charlene V. Purtee, B.S.

Captain, USAF

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Charlene V. Purtee

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Abstract

The United States Air Force Museum, located at Wright-Patterson AFB, Ohio, provides an overview of the Air Force's aviation history, free to the public. In 1996, the Foundation, a non-profit organization that provides financial support for the display of the aviation memorabilia, attempted to determine the demographic representation of the Foundation membership. In their analysis the Foundation found that the membership represented only a small portion of the actual population that visited the Museum annually. In 1997, a second survey was accomplished to establish a cursory demographic breakout and answer a variety of questions from the visitors at the Museum. Resulting from this study was a series of issues that invited further investigation.

As a follow-on study, this thesis developed a group survey to collect the necessary information to establish an in-depth assessment of the motivation and behavior patterns of the full range of museum visitors in order to determine factors that influence the individuals' visitations. Survey results indicated the typical visitor is a Caucasian male with military experience and some college education. Over 70 percent of the typical visiting groups include out-of-town guests. In addition, the visit is most often planned within one day of the trip and suggested by an adult male. The typical visitor learned about the Air Force Museum through verbal sources.

THE DEMOGRAPHIC AND BEHAVIORAL PATTERNS

OF VISITORS TO THE USAF MUSEUM

I. Introduction

Background

The United States Air Force Museum, located at Wright-Patterson AFB, Ohio,

provides an overview of the Air Force's aviation history, free to the public. Financial

support for the Museum comes in two forms. First, operational funding is received from

the United States Air Force. These funds are used explicitly for the building and grounds

maintenance, personnel costs, operations, and the refurbishment and storage of the

military aviation equipment, artifacts and documents. The Air Force Museum

Foundation, a non-profit organization, was established in 1960 to raise funds for expenses

not provided for by government appropriations. The Foundation also provides limited

support for the public visitation of the Museum, and contributes to esthetic improvements

of the buildings and grounds, and the expansion of the Museum facility. The Foundation

utilizes membership and revenue-generating methods to produce its funds. Both

membership and the revenue establishments are contingent upon the volume of visitors.

General Issue

Little is known about the motivation and behavior patterns of the USAF Museum

visitors. In 1996, the Foundation attempted to determine the demographic representation

of the Foundation membership. It discovered that almost 70% of the Foundation

membership was composed of people over the age of 60 and that nearly 88% had some

direct connection to military service. In addition, the Foundation found that the membership was a small portion of the actual population that visited the Air Force Museum annually. A 1997 Air Force Institute of Technology (AFIT) Thesis effort gathered preliminary demographic data about museum visitors and sought answers to a variety of questions relating to visitor satisfaction with museum services and accessibility. Resulting from this study was a series of issues that invited further investigation to include further evaluation of advertisement, and other possible motivating factors (Wosilius, 1997:49).

Specific Problem Statement

Resolving most of the issues resulting from the 1997 AFIT Thesis depends on discovering motivations and behavior patterns of visitors to the Air Force Museum. The goal of this study is to collect the necessary information to establish an in-depth assessment of the motivation and behavior patterns of the full range of museum visitors to determine factors that influence the individuals' visitations. Answers to these questions should help museum staff more effectively utilize museum resources to provide consistently appealing displays and presentations and allow better use of advertising.

Research Objective

The desired end goal is to ascertain who visits the museum, what influences their attendance, and what motivates return visits. Answers to these questions are obtained primarily through a survey.

Investigative Questions

The answer to the research question can be derived from answers to each of the following questions:

1. *Where did the visitors travel from in order to visit the museum? Are they local or non-local visitors?*

2. *How long are the visitors staying in the local area?*

3. *How far in advance was the visit planned prior to the actual visit (i.e., one day or months)?*

4. *What was the purpose for visiting (i.e., interest in aviation, military history, sightseeing, etc.)?*

5. *What types of sources influenced the visit?*

6. *Was advertising an influence or an effect on the decision to visit?*

7. *Was this the first visit to the Museum or a repeat visit?*

8. *What is the demographic make-up of the attendees?*

9. *Was the IMAX attended?*

10. *Was the Gift Shop/Book Store visited? And was anything purchased?*

Discussion of Investigative Questions

The first two questions are aimed at determining the location from which the visiting population is based and the priority of the museum in visitors' travel plans; this information would allow the Air Force Museum to focus advertising in known visitor population locations.

The questions of timing and purpose of visits would benefit the museum to discover factors determining rationale for visits, such as vacations, and if certain sections of the population visit at given times of the week, month, or year. For example, families visit on weekends, while retired people attend the museum on weekdays, and annual visits are tied to regional activities. It would also be beneficial to know the motivation factors such as interest in aviation, military, history, and family members' prior service.

Sources influencing the visit would help to determine what brings the visitor to the museum (i.e. advertising, family member's military service, word of mouth). While knowing the advertising influence or effect on the decision to visit would evaluate present advertising as an effective influencing factor, and determine what advertising is actually reaching the present visitor.

Determining the percentage of returning visitors and reasons for repeat visits (i.e. new displays, general interests, bringing other visitors) may enable the Museum to better emphasize attractive aspects and displays.

Demographic data of attendees are necessary to determine population base and possible advertising focus.

The final two questions will possibly provide motivating factors for visit or repeat visitations.

Summary

This survey attempts to determine the factors that contribute to visitor attendance. Knowledge of demographic data and motivating factors of visitors would assist the

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museum in better meeting the needs of the visitors, as well as finding ways to reach more people through advertising.

Thesis Overview

This thesis is divided into five chapters. Chapter I discusses the background and the problem facing the USAF Museum. Specific investigative questions are presented and a route is formulated for the subsequent chapters. Chapter II comprises a review of literature pertaining to museum visitor studies, museum administration, and an interview of the management staff of a similar museum. Chapter III describes the development of the survey instrument and its administration. Chapter IV is comprised of the analysis of the data gathered from the administration of the survey at the USAF Museum during March and June 1998. Finally, Chapter V evaluates the results, and makes recommendations for future evaluation at the USAF Museum.

II. Literature Review

Overview

A review of the literature pertaining to museum visitor evaluations accomplished by other museums is essential in the development a survey to determine the approach and desired data set forth in the research objectives sections of this study. The following literature review is organized to evaluate possible methods and avenues used to accomplishment this study's objectives

Profile of Museums

The profiles of typical museums vary greatly. Research demonstrates that the typical museums differ in style, presentation, and attraction. A 1972 dissertation reported that there are "more than 6,000 museums in the United States; that [museums] come in all sizes, shapes and conditions; and that they engage in an extraordinary variety of activities" (Newgren, 1972:1). In addition, Newgren cited 84 categories classifying museums, of which 43 were focused on art, history or science, while the remaining were specialized. Therefore initially restricting the definition is necessary in order to evaluate the present systems utilized in establishing the profile of a typical museum visitor.

For the purpose of this study, a museum is defined as an institute established for the "acquisition, preservation, study, and exhibition of works of artistic, historical, or scientific value" (*American*, 1985:823). This definition excludes other institutions that are often included in studies with museums, such as zoos, galleries, and libraries. This study also focuses on large museums (The Smithsonian Institution, and Royal Ontario Museum) and museums with similar aviation interest (The Boeing Museum of Flight).

Within the structural definition of a museum there are two categories that greatly affect the accuracy of recording museum visitor attendance: admission charging, and free admission museums. Davies indicated that the "number of visits each museum records is one of the few universally recognized performance indicators" (Davies, 1995:40). Admission-charging museums have little variation between actual and recorded attendance since ticket sales accurately count attendees.

However, museums, including the Air Force Museum, that do not charge admission fees face the hurdle of accurately measuring visitor attendance. The difficulty lies in the devices utilized to count and record visitor entrance into the museum. "Counting methods at free admission facilities will always be questioned, for exaggeration and under-recording" (Davies, 1995:40). The Air Force Museum uses an infrared sensor, installed in 1992, to count visitors entering the Museum (Wosilius, 1997:1). The museum staff regularly validates the attendance numbers because of the counter's vulnerability to changes in the weather and inability to distinguish certain clothing colors (dark colors do not always register). Monthly volunteers are assigned to count the entering visitors and the tally is compared to the door counter's total. The result is a fairly consistent 5 percent undercounting error. Therefore, reported figures are adjusted upwards by 5 percent (Bowen, 1998).

Along with the large range of museum types, the variation of visitors seems to be extensive. Therefore the characteristics of the average museum visitor will be as diverse as the museums themselves.

Profile of the Museum Visitor

Attendance, although a means to measure the success of a museum, does not demonstrate or describe the typical visitor to the museum. Therefore obtaining the demographic data on the typical visitor becomes necessarily. Normally this information is "available from questionnaire surveys of visitor samples selected to represent the total museum-going public" (Nedzela and Lane, 1990:181).

An article published in the November 1994 issue of *American Demographics* insists that "most museum visitors are well educated, well-off, and white," citing a 1992 study funded by the National Endowment for the Arts (NEA) (Larson, 1994:34). Multiple well-documented studies reach similar conclusions. The 1958 The Royal Ontario Museum (ROM) survey, the Smithsonian Institution's visitor surveys, and the 1995/6 survey conducted at the Boeing Museum of Flight, Seattle, Washington all seem to reflect Larson's summation of the typical visitor.

The Royal Ontario Museum surveys were conducted over a 5 year period with the first survey of the visiting population beginning on July 1, 1958 (Abbey and Cameron, 1959:2). Although race is not recorded in this study, the education level of post secondary schooling was 41 percent, almost triple that of the local metropolitan population. However, the income level for the museum visitors reflected closely the same divisions as the surrounding public (Abbey and Cameron, 1959:11-12).

The Smithsonian's National Museum of American History (NMAH) found 88.8 percent to be Caucasian and 65.2 percent obtained schooling greater than completion of high school (Perkarik et al, 1995:81-82). The National Air and Space Museum (NASM) found in a 1988 study that annually, an average of 84 percent of the visitors were white

and 51 percent held bachelor's degrees (Doering and Black, 1989:v). Income was not recorded. A follow-up study in 1994 found that 79 percent were Caucasian with 67 percent holding bachelor's degrees or higher (Ziebarth, et al., 1995:7&12). Again income was not measured.

The 1995/6 Boeing Museum of Flight found 88.5 percent with post high school education and 53.5 percent having an income in the range of $20,000 to $59,999. This museum did not record ethnic background (Bufano, 1997).

Larson says that the NEA study indicates "gender and age have little effect on museum-going habits, but race, education, and income do" (Larson, 1994:34). Again the reviewed studies found similar gender ratios (males to females in the party) and age ranges of the visitors. The ROM surveys found a gender ratio of 51:49, male to female, and age consistent with the local population (Abbey and Cameron, 1960:9).

The Smithsonian's NMAH found a gender ratio of 55.4:44.6 (Perkarik et al, 1995:41). The Smithsonian's NASM found, in its 1988 study, a gender ratio of 60:40 (Doering and Black, 1989:iv). In a follow-up survey in 1994, The Smithsonian again found the same ratio (Ziebarth et al., 1995:iv). The NASM 1988 survey found 49.7 percent to be between the age of 25 and 44 (Doering and Black, 1989:7) and 40 percent in 1994 (Ziebarth et al., 1995:6).

The Boeing Museum of Flight did not categorize the age of the visitors but found the total average adult age was 45 years. It also did not summarize the ratio of men to women but its survey found a larger portion of women suggesting the visit to the museum than predicted. This last fact became the basis of a new advertising campaign to capitalize on the female population influencing visitations (Bufano, 1997).

Influences on Visitor Attendance

In 1992 *ARTnews* reported "museums have been spending millions of dollars in recent years to find out, in greater detail than ever before, why people visit" (Zorpette, 1992:94). Numerous techniques have been appropriated from business and marketing, to include "questionnaires, polls, tracking studies, surveys, and 'focus group' interviews" (Zorpette, 1992:95). All this techniques are being accomplished because "demographics are changing, and museums have to serve a broader audience" (Larson, 1994:34). In 1995, Chicago's "premier museums" were failing to obtain the "leisure dollars" (Cleaver, 1995:1). Six museums in the Chicago area had declining attendance, and Cleaver reports that this was a nationwide trend (Cleaver, 1995:69). Eilean Hooper-Greenhill explores this effect in her book *Museums and Their Visitors*. She attributes the growing competition created by the leisure industry and the constant size of the available participant pool. She also notes that leisure time is decreasing (Screven, 1996:59). The result of this information is the realization that museums must become focused to compete in the leisure industry and motivate potential audiences to visit.

Special events or exhibits draw in visitors as does "creating exhibits that reflect community interests" (Larson, 1994:35). Another avenue being explored to luring visitors to museums is interactive exhibits. These special exhibits are no longer limited to children. In addition, interactive exhibits increase the public's physical access to museum collections. Experts insist that this contact with the exhibits enhances learning and motivation of the visitor to return (Larson, 1994:36). Smaller changes such as "better maps, signs, and collection information" are attempting to entice audiences and reduce the intimidation factor that keeps first-time visitors away (Zorpette, 1992:95).

Motivation for Return Visits

Return visits are also a necessity for the survival of museums. If visitors do not return, eventually museums will deplete their audiences. As pointed out by Larson, "getting people to the museum door is only part of the battle" (Larson, 1994:38). In one particular study "one third of the visits are made by children, representing the most significant segment" (Davies, 1995:43). Larson asserts that the largest factor in the parents' decision to bring children to visit a museum is based on whether the parents had been brought to a museum as a child by their parents (Larson, 1994:38). In addition, Davies found an "obvious correlation" between repeat visitors and local residency (Davies, 1995:43).

Models/Methods Used by Other Museums

The Royal Ontario Museum utilized 30 of the Women Members Committee as volunteers to accomplish interviews with a sample of 4,800 visitors over a five year period (Abbey and Cameron, 1959:2-3). The number of surveys per day was proportioned to the average gross attendance and weighted accordingly, as was seasonal variation (Abbey and Cameron, 1959:4-5). The survey was developed internally by the Office of Information Service, ROM (Abbey and Cameron, 1959:1).

The Smithsonian's National Museum of American History conducted 811 entrance and exit interviews with an interview protocol developed internally by the Institutional Studies Office, Smithsonian Institute; trained museum personnel administered these (Perkarik et al, 1995:1). Data was collected over eight days spanning

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late June and early July of 1995 taken during 6 of the 8.5 available hours of operations (Perkarik et al, 1995:B3-4).

The Smithsonian's National Air and Space Museum's 1988 study was an exit survey for visitors 12 years and older during a 24-week period from July to December (Doering and Black, 1989:ii). Questionnaires were two pages long and interviewers were hired specifically for the survey (Doering and Black, 1989:3). The survey was developed under the guidance of the Institutional Studies staff (Doering and Black, 1989:6).

The Smithsonian's National Air and Space Museum's 1994 survey was undertaken as a follow-on to the 1988 survey previously mentioned. This time 2,975 visitors were surveyed. This survey project spanned a full year, but was conducted over 24 selected weeks throughout the year (Ziebarth et al., 1995:iii-iv).

The Boeing Museum of Flight conducted exit surveys developed by Morry and Associates (a for-profit organization hired to create a survey tailored to the Museum). Volunteers approached visitors randomly at the exit of the museum over a two-week period. Surveys were one page front and back consisting of 28 questions, and the visitors wrote answers directly on the survey; completion took between 5 and 10 minutes. For statistical significance, 300 surveys were obtained, proportioned throughout the week by "typical" attendance (more surveys on Saturday and Sunday and fewer on weekdays). Gifts were given at the completion of the survey but were not used as enticement. (Hayes, 1997).

III. Methodology

Introduction

In Chapter II the literature demonstrated a number of different processes possible for obtaining demographic information and advertising influence on museum visitors. After evaluation, the group survey method was selected to obtain the desired information pertaining to the typical Air Force Museum visitor. The Museum of Flight, based in Seattle, Washington, conducted a group survey that captured data similar to the concerns of the Air Force Museum. Therefore emulation of the Museum of Flight's survey, with some modification, was selected as the course of action. The survey for the Air Force Museum was developed to capture three main areas: demographic background of the typical museum visitors by groups; motivating factors of the groups surveyed; and advertising influences. Unlike the Museum of Flight's survey, this survey did not solicit opinions or preferences from the visitor about the museum or facilities.

Survey Construction

The survey construction was accomplished by selecting the important demographic, motivation factors, and advertising information desired and developing questions to obtain this information of the surveyed visitors. The final draft of the survey is included in Attachment 1.

Based on the typical demographic breakouts, the following questions were selected to obtain the desired information: Party size (Q-1), Gender (Q-1), Age (Q-1), Race (Q-1), Military and Aviation experience (Q-2), Education (Q-3), Income (Q-4), Museum Foundation membership (Q-5), and Residency (Q-10). Demographic questions

were created as a numerical fill-in style (i.e. party size, gender, age, etc.) and Yes/No questions (i.e. Friends of the Museum member, military or aviation experience, etc.).

Motivation factors included information on personal/group interests (Q-6), visitation of specific exhibits (Q-7, 8, & 9), military and/or aviation experience (Q-2), suggestor of the visit (Q-16), visitation to the local area (Q-11), length of stay (Q-11), lodging facilities (Q-11), visit planning (Q-12), repeat visitations (Q-13), and free admission (Q-14). These questions were all Yes/No or check-the-box style questions.

Advertising effects were solicited through source of initial knowledge about the Air Force Museum (Q-15), sources of seen advertising (Q-17) and free admission (Q-14).

All questions were neutrally worded for use as either an exit or entrance survey with the exception of questions 8 and 9 (IMAX and gift shop visitation). Since these two questions could not be neutrally worded it was decided to establish the survey as an exit survey.

The survey was restricted to the front and back of one page to eliminate hesitation or refusal due to appearance of a time burdening process. To lessen the inconvenience to those surveyed, all answers were recorded directly on the survey form.

Test of Survey

After construction, the survey was tested on AFIT students for clarity, completeness, and readability (font and question order). All subjects were familiar with the Air Force Museum and had visited it at least once in the previous year. Instructions were given verbally (as was intended for the conduct of the survey). Feedback was solicited at the time of the survey. No major difficulty was found with the presentation or

readability of the survey. No questions were found to be difficult or confusing. Minor changes were made to question order. An "Over" statement was placed at the bottom of the first page to remind the surveyor of the reverse side. The omission of the ethnic group question was noted and the question was added.

Survey Timing

The decision was made to conduct two separate surveys over two one-week periods. Since the Museum of Flight had found significantly different attending populations in its winter and summer surveys, it was determined that one survey would be conducted in the winter attendance months and one in the summer attendance months. Determination of these categories was based on the previous three years' attendance records. These records noted that monthly attendance maintained a steady number during the months of November through March and a different but steady number from June to August. Attendance during the intervening months between these two periods was either steadily growing or declining. In addition, Air Force Museum personnel consider the Memorial Day weekend as the beginning of the summer attendance.

With other limiting factors of timing, one week in March and one week in June were selected. Additional factors affecting the selection of weeks included: special events hosted at the Air Force Museum that would bring in visitors not considered to be typical, opening of new exhibits, holidays, and feasibility of survey execution.

Sample Size Determination

Total monthly attendance and the average daily attendance determined the sample size for the two weeks for each month using the previous year's data. Monthly attendance for 1997 showed 89,525 visitors came in March and 105,966 visitors came in June (Bowen, 1998). Calculations indicated 2.5% of the attendees needed to be included in the sample (this assumed an average group size of at least three people translated to 10% of the visitors being included in the sample). Since the weekday attendance varied little from Monday through Friday, the same number of surveys was collected for all weekdays. Saturday attendance was about triple and Sunday about double that of the weekday attendance. The schedule surveys are shown in Table 1.

Table 1. Surveys to be collected

Month/Day	Number of surveys
March/Weekday	30
March/Saturday	90
March/Sunday	60
June/Weekday	35
June/Saturday	105
June/Sunday	70

As the last of the winter months, March was selected, and June as the beginning of the summer months.

Survey Administration

Surveys were gathered at the same time each afternoon. Visitors to the museum were approached and requested to complete the survey. Minimum verbal instructions

were provided with each survey. In addition, surveys were available for visitors who volunteered to fill out surveys. Negative responses were noted but found to be negligible.

Analysis of the Data

Survey data are analyzed using a combination of Microsoft Excel 97 and Statistix Version 1.0 computer programs. Analysis includes examination of possible presence of correlation or connections between demographic data, motivation factors, and advertising influence of each of the weeks separately and combined. Weekday responses are compared to weekend responses, as are summer data to winter data.

Summary

This chapter outlines the methodology used to develop, test and administer a visitor survey at the Air Force Museum. The analysis of the data obtained by the survey is presented in the following chapters. Differences and developments as pertaining to the methodology and the actual administration are discussed in the final chapter.

IV. Analysis

Introduction

Two one-week long surveys were conducted to capture information necessary to fulfil the research objective. One week in March and another in June were selected as samples of the winter and summer visitations, respectively. The weeks were chosen as to *not* coincide with any major event planned by the Air Force Museum to reduce the possible selection of non-typical audience members during the surveying time frame.

Number of Surveys Collected

For the week in March, a total of 302 surveys were collected, while for June's week, 341 were collected. The survey schedule mentioned in Chapter III, Table 1 was followed. The Saturday in June was the only day the intended amount of surveys was not achieved (short by 5) at the Museum's closing time. The other differences between the number of surveys intended (as per Table 1) and the actual collected (in Table 2, below) are due to lack of completeness of some surveys. The surveys that did not contain enough data were removed before analysis.

Table 2. Actual Number of Surveys by Day

Day	March Intended / Actual	June Intended / Actual
Monday	30 / 29	35 / 33
Tuesday	30 / 30	35 / 34
Wednesday	30 / 30	35 / 35
Thursday	30 / 30	35 / 36
Friday	30 / 30	35 / 35
Saturday	90 / 92	105 / 98
Sunday	60 / 61	70 / 70
Totals	300 / 302	350 /341

Past attendance records indicated that about half the visitors attend on the weekday while the other half visit on the weekend. The attendance records indicated weekdays had approximately equal attendance, Saturdays had triple that of the weekday and Sunday had double. The ratio therefore was 1:1:1:1:1:3:2.

For the purpose of this thesis, all confidence intervals (CI) are calculated for 95 percent confidence. In addition, when calculating the p-value, the test for Unequal Variance was used when the test for Equal Variance had a $p < 0.1$. P-value calculations were accomplished by Statistix.

Group Composition

Since one adult from each group filled out the survey, group make-up was not necessarily known prior to completion of the survey. Therefore some school field trips, Boy Scout troops, or daycare parties were included in the groups surveyed. As a result, there was concern that such large parties might distort averaged data. After the data was reviewed, it was determined that the groups with greater than 11 members in the party would be omitted from the weekday and weekend analysis. First, the weeks are analyzed with the large parties' surveys included and then the analysis is accomplished without the large parties. For completeness, the tables show the averages and confidence intervals obtained when including the large groups. However, significance testing was only performed on the small-group data, omitting parties with more than 11 members. The March surveys included a total of 17 parties with over 11 members and the June surveys had 9 oversized parties.

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The 302 surveys collected in March resulted in information pertaining to 1,543 individuals. Without the 17 large party surveys, the 285 remaining surveys in March accounted for 1,041 individual visitors. June's 341 surveys totaled 1,455 individuals, while omitting the 9 large parties reduced the survey count to 332 and 1,119 individual visitors.

The Average Party Size was just over three people when large groups were removed (Table 3). This supported the assumption that the average party size would be three for the determination of the number of surveys necessary to collect. As seen in Table 4, when comparing the March to June groups, with and without the large parties, the CIs overlap. This is also the case when comparing the weekdays and weekends within each of the months. This indicates that there is no statistical difference between the groups compared.

Table 3. Average Number in Party

Survey	March	June
Week w/large groups	5.11	4.27
Week w/o large groups	3.65	3.37
Weekday	3.36	3.18
Weekend	3.96	3.56

Table 4. CIs of Average Number in Party

Survey	March	June
Week w/large groups	(4.30,5.92)	(3.59,4.94)
Week w/o large groups	(3.43,3.88)	(3.16,3.58)
Weekday	(3.06,3.66)	(2.89,3.47)
Weekend	(3.63,4.28)	(3.26,3.86)

The difference between the March weekday and weekend attendance surveyed was 63 people while the difference for June was 67 individuals. March weekday visitors

were 47.18 percent of the total visitors covered by the March survey. The June weekday visitors totaled 46.78 percent. These percentages coincide with the previously mentioned expectation that approximately 50 percent of the visitors attending would be surveyed on the weekday as with the weekend.

Average Number of Adults also saw a small change in the average when removing the large groups from the analysis data (as seen in Table 5). The average also indicated a slightly larger number of adults in the surveyed parties on the weekend versus the weekday for both March and June. Since the CIs overlap there is no significant difference between the two samples (Table 6). Once again the two months have close to the same average of adults in the party.

Table 5. Average Number of Adults

Survey	March	June
Week w/large groups	2.73	3.16
Week w/o large groups	2.48	2.61
Weekday	2.37	2.48
Weekend	2.61	2.75

Table 6. CIs of Average Number of Adults

Survey	March	June
Week w/large groups	(2.54,2.93)	(2.70,3.62)
Week w/o large groups	(2.34,2.63)	(2.45,2.77)
Weekday	(2.16,2.57)	(2.26,2.69)
Weekend	(2.40,2.81)	(2.51,2.98)

Average Number of Children reflected a large change for both March and June when the parties with greater than 11 members were removed. Table 7 displays the averages. The change in average can be accounted for, because the larger parties typically consisted of Boy Scout troops, school field trips, and daycare or day camp

groups where a small number of adults brought a large number of children. In addition, it appears that parties tended to bring more children in March than in June. Table 8 shows that the CIs do not overlap and therefore there is a significant difference between groups in March that brought children to the Air Force Museum in comparison to the groups in June that brought children (p=0.0003). The opposite was expected since school was still in session in March. One possible explanation could be school field trip personnel or scout leaders might have divided up the children on the field trip and therefore filled out the survey with only their portion of the children accounted for. This division of the large groups would result in the total number in the party being less than 11 and therefore not removed with the large groups.

Table 7. Average Number of Children

Survey	March	June
Week w/large groups	2.38	1.11
Week w/o large groups	1.17	0.76
Weekday	0.99	0.70
Weekend	1.35	0.82

Table 8. CIs of Average Number of Children

Survey	March	June
Week w/large groups	(1.67.3.08,)	(0.69,1.54)
Week w/o large groups	(1.00,1.34)	(0.63,0.89)
Weekday	(0.77,1.22)	(0.53,0.88)
Weekend	(1.08,1.62)	(0.63,1.01)

The difference of the average number of children on the weekday compared to that of the weekend reflected what might be expected -- that more children were brought on the weekend during the school year (March) while little difference was seen between

the weekend and weekday attendance of children during the summer months (June). There is no significant difference in the weekday to weekend groups.

Adult Male to Female Ratio of the Air Force Museum visitors seems to be consistent with what was found in the literature for other museums. The normal ratio appeared to be 60:40 men to women. Actual average ratios are in Table 9. The parties seemed to have a larger percentage of women attending during the weekdays in March while the opposite was found in June. No statistical difference can be discerned between these groups (Table 10).

Table 9. Adult Male to Adult Female Ratio (%)

Survey	March (male:female)	June (male:female)
Week w/large groups	61:39	59:41
Week w/o large groups	60:40	58:42
Weekday	56:44	60:40
Weekend	62:38	57:43

Table 10. CIs for the Proportion of Adult Males (%)

Survey	March	June
Week w/large groups	(57.6,64.4)	(55.6,61.7)
Week w/o large groups	(55.8,63.2)	(54.8,61.6)
Weekday	(51.0,61.8)	(54.5,64.5)
Weekend	(57.3,67.5)	(52.3,61.8)

Child Male to Female Ratio differed from that of the adult ratio. The weekdays of both months held close to the 60:40 ratio, while it is evident from Table 11 that more male children are brought overall and on the weekend. The elimination of the parties with more than 11 members appeared to affect this information. Once again, if the large groups were Boy Scouts troops, the composition of such groups would naturally reduce

the number of girls likely to be in these parties. However, no statistical difference can be discerned between these groups (Table 12).

Table 11. Male Children to Female Children Ratio (%)

Survey	March (male:female)	June (male:female)
Week w/large groups	68:32	59:41
Week w/o large groups	63:37	64:36
Weekday	61:39	61:39
Weekend	64:36	65:35

Table 12. CIs for the Proportion of Male Children (%)

Survey	March	June
Week w/large groups	(64.7,72.2)	(53.8,64.9)
Week w/o large groups	(57.3,68.2)	(57.5,69.7)
Weekday	(52.5,69.0)	(51.8,70.6)
Weekend	(57.1,71.5)	(57.4,73.4)

Adult Average Age showed very little effect by removing the parties with more than 11 members (Table 13). The Average Adult Age for both months had a higher average age during the weekday than the weekend. The CIs found in Table 14 do not overlap for the weekday and weekend groups in both March and June and a statistical difference was found (p=0.0008, p=0.0009, respectively). In addition, the June attendees had an older population of adults than the March attendees. There was a significant difference between the two month's averages as well (p=0.0000). Since this author expected a bimodal population, analysis was done on the frequency distribution. However, the age distribution of the visitors reporting their age was normally distributed with no indication of multiple modes.

Table 13. Adult Average Age (years)

Survey	March	June
Week w/large groups	43.5	49.5
Week w/o large groups	43.5	49.6
Weekday	46.3	52.5
Weekend	40.9	46.8

Table 14. CIs of Adult Average Age (years)

Survey	March	June
Week w/large groups	(42.0,45.0)	(47.8,51.1)
Week w/o large groups	(41.9,45.0)	(47.9,51.3)
Weekday	(43.8,48.7)	(50.0,55.0)
Weekend	(39.0,42.7)	(44.7,48.9)

The parties with more than 11 members had a greater influence on the Child Average Age than was seen with the Adult Average Age (Table 15). Table 16 does not indicate overlapping CIs. Although there is not a large or significant difference in the average age of the children on the weekday as to the weekend, there is a transposition between March and June as to the older average age on the weekend versus the weekday (Table 15). Again field trips that did not show up as parties greater than 11 may account for this difference in the March weekend having a higher Average Age of Child.

Table 15. Child Average Age (years)

Survey	March	June
Week w/large groups	8.5	8.2
Week w/o large groups	8.1	8.8
Weekday	7.9	8.8
Weekend	8.3	7.7

Table 16. CIs of Child Average Age (years)

Survey	March	June
Week w/large groups	(7.8,9.1)	(7.5,8.6)
Week w/o large groups	(7.5,8.8)	(7.4,8.8)
Weekday	(6.9,8.8)	(7.6,9.7)
Weekend	(7.4,9.2)	(6.7,8.6)

Consistent with results shown in the literature, the majority of the visitors to the Air Force Museum are Caucasian. In this case, Caucasian was a conglomeration of heritages that would traditionally be classified as white and therefore do not fall into one of the other categories. This was the dominant ethnic category for visitors during both of the months March and June. Tables 17 and 18 respectively display the full categorization of those visitors answering the ethnic category question.

Table 17. March - Ethnic Categories (%)

March Survey	African American	Native American	Asian	Caucasian	Hispanic	Other
Week w/large group	4.6	9.6	5.6	76.9	5.6	2.6
Week w/o large group	4.2	9.5	5.6	72.2	6.0	2.5
Weekday	4.8	11.0	3.4	73.1	6.2	3.4
Weekend	3.6	7.9	7.9	71.4	5.7	1.4

Table 18. June - Ethnic Categories (%)

June Survey	African American	Native American	Asian	Caucasian	Hispanic	Other
Week w/large group	1.8	8.0	4.2	75.6	5.0	5.4
Week w/o large group	2.1	11.1	5.7	70.0	6.6	4.8
Weekday	1.2	11.4	3.6	69.2	7.2	3.6
Weekend	3.0	10.8	7.8	70.0	6.0	6.0

The Native American category had a much larger than expected percentage. The national average is about 7 percent. During the survey administration it was noticed that parties not appearing to be Native American (American Indian, or Eskimo) were selecting the category. This seemed to frequently happen with older couples (senior citizens). The possibility that the categories were misunderstood seems feasible. Further discussion on this problem is covered in Chapter V.

Other Group Factors

Since Income was asked by categories, and multiple incomes were reported for parties, an actual Average Income can not be obtained for each group. The median category was found to be the $40,000 to $59,999 range for surveyed parties in both March and June and for the respective weekday or weekend. The purpose for asking this question in a categorical format was to avoid alienating persons not liking to disclose personal income information. However, the income question was not completed 16 percent of the time in March and 14 percent of the time in June and therefore the change in the style of the question appears to not have achieved the desired effect.

The Boeing Museum of Flight personnel had discovered a greater amount of female influence than expected. Therefore the Suggestor of the Visit was asked to observe any significant influence on who suggested the visit to the Air Force Museum. The choices were an Adult Male, an Adult Female, or a Child. The adult male suggested fairly consistently about 76 percent of the visits. In contrast, the adult females suggested about 20 percent of the visits. The visits suggested by child had only one significant fluctuation and that was between the March weekday and weekends (Table 19). Again the child's influence in visits falls in line with the school year and therefore the child's possible influence on visiting the Air Force Museum in March would be more or less restricted to the weekends.

Table 19. Suggestor (%)

Survey	March (male/female/child)	June (male/female/child)
Week w/large groups	76.6 / 19.4 / 4.0	76.8 / 19.6 / 3.5
Week w/o large groups	76.2 / 19.9/ 3.9	76.8 / 19.5 / 3.6
Weekday	77.5 / 20.9 / 1.6	76.4 / 20.3 / 3.4
Weekend	74.8 / 18.9/ 6.3	77.3 / 18.8 / 3.9

The literature on museum visitors indicated education influenced museum visitations. The education level of the party members surveyed was asked categorically. The results indicated in Table 20 are the percentage of visitors with some college education or higher. The education level of the visitors to the Air Force Museum appears to be lower than that of visitors to the museums mentioned in Chapter II. However, it was unclear as to whether the other museums include children in their calculations, as was done with these.

Table 20. Some College or higher Education (%)

Survey	March	June
Week w/large groups	37.5	53.9
Week w/o large groups	46.6	55.5
Weekday	48.6	53.0
Weekend	44.9	57.7

There is a significant difference between the March and June groups (p=0.0000) as shown by the CIs that do not overlap in Table 21.

Table 21. CIs of Some College or higher Education (%)

Survey	March	June
Week w/large groups	(34.9,40.2)	(51.2,56.5)
Week w/o large groups	(43.4,49.9)	(52.5,58.5)
Weekday	(43.9,53.3)	(48.7,57.4)
Weekend	(40.6,49.4)	(53.6,61.8)

Question 11 on the survey was developed to ascertain if anyone in the party was a visitor to the Dayton area. The desire was to break out the local and non-local visitation influence. Table 22 shows, of the groups surveyed, a little over 70 percent contained visitors from out-of-town. This indicates that a great deal of the visits are made with out-of-town guests. It is not clear how many of these groups included non-local guests who

were visiting people in the local area versus the number that did not visit people in the area. Once again the removal of the parties over 11 members in size did not seem to affect the percentages. There was also no significant difference between the weekend and weekend groups for either the March or June groups (Table 23).

Table 22. Percentage of Non-Local Visitors (%)

Survey	March	June
Week w/large groups	71.7	71.8
Week w/o large groups	71.0	73.0
Weekday	71.3	73.6
Weekend	70.7	72.4

Table 23. CIs of Percentage of Non-Local Visitors (%)

Survey	March	June
Week w/large groups	(66.6,76.8)	(66.7,76.8)
Week w/o large groups	(65.7,76.3)	(68.0,78.0)
Weekday	(63.9,78.7)	(66.6,80.7)
Weekend	(63.2,78.3)	(65.3,79.5)

For the groups that contained non-local individuals, the question was posed as to the length of their visit to the area. It appears from the data in Tables 24 and 25 that the greatest number of non-local visitors tended to stay in the area less than eight hours. The next most frequent length was two days. In addition the percentage was slightly larger for the weekend visitors in these categories. This pattern in the results appears to be similar for both the March and June surveys. The three to five day category held the third most common answer. However, in this category the differences between the winter and summer visitors begins to show. June's results still show a high selection in the three to five day category -- about 18 percent -- and close to the same on the weekend as on the

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weekday. While March's results are lower than 18 percent and have a larger average on the weekday (17.5 percent) than on the weekend (11.5 percent).

Table 24. March - Length of stay in local area (%)

Survey	<8 hrs	8-24 hrs	1 day	2 days	3-5 days	6-7 days	>7 days	Seasonal Resident
Week w/large groups	39.3	8.1	11.8	19.4	13.7	4.3	2.8	0.5
Week w/o large groups	38.7	7.5	12.1	19.1	14.6	4.5	3.0	0.5
Weekday	31.1	7.8	15.5	15.5	17.5	7.8	3.9	1.0
Weekend	46.9	7.3	8.3	22.9	11.5	1.0	2.1	0.0

Table 25. June - Length of stay in local area (%)

Survey	<8 hrs	8-24 hrs	1 day	2 days	3-5 days	6-7 days	>7 days	Seasonal Resident
Week w/large groups	24.1	7.3	10.2	22.0	18.4	7.3	8.2	2.4
Week w/o large groups	24.0	7.4	10.3	21.9	18.2	7.4	8.3	2.5
Weekday	18.0	11.5	9.0	20.5	18.0	9.0	9.8	4.1
Weekend	30.0	3.3	11.7	23.3	18.3	5.8	6.7	0.8

The groups that contained out-of-town visitors were also asked if they were staying in a hotel or motel (Table 26). The parties with more than 11 members had minimal effect on the results. Table 26 shows that weekday non-local visitors were more likely to be using a hotel or motel. Also by a small percentage, there were more non-local visitors staying in hotels or motels in June than in March but significance can not be determined since the CIs overlap (Table 27).

Table 26. Non-Local Visitors staying in Hotels or Motels (%)

Survey	March	June
Week w/large groups	35.4	41.1
Week w/o large groups	36.3	40.8
Weekday	40.6	42.5
Weekend	31.5	39.1

Table 27. CIs of Non-Local Visitors staying in Hotels or Motels (%)

Survey	March	June
Week w/large groups	(28.9,42.0)	(34.8,47.5)
Week w/o large groups	(29.5,43.1)	(34.4,47.2)
Weekday	(31.0,50.2)	(33.4,51.6)
Weekend	(22.0,41.0)	(30.2,48.1)

The last section of Question 11 focused on the visitors' previous knowledge about the Air Force Museum. This question was asked to learn if the out-of-town visitors knew about the Air Force Museum before arriving in Dayton or if they learned about the Museum after arriving in the Dayton area. The results in Table 28 show the percentages of groups that had previously knowledge about the Air Force Museum prior to arriving in Dayton. About 88 percent of the parties with non-local visitors attending in March and about 90 percent of these parties in June already knew about the Air Force Museum prior to arrival in the area. However, a significant difference between the two groups could not be established. This percentage difference could have been influenced by the fact that the group make-up was not necessarily exclusively non-local visitors. In other words, local visitors knew about the Air Force Museum and were bringing their out-of-town guests.

Table 28. Prior Knowledge (%)

Survey	March	June
Week w/large groups	88.9	90.4
Week w/o large groups	88.1	90.3
Weekday	89.0	90.2
Weekend	87.2	90.4

Table 29. CIs of Prior Knowledge (%)

Survey	March	June
Week w/large groups	(84.6,93.2)	(86.5,94.2)
Week w/o large groups	(83.6,92.7)	(86.4,94.2)
Weekday	(82.9,95.1)	(84.7,95.7)
Weekend	(80.5,94.0)	(84.9,95.8)

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First Time Visitors versus Repeat Visitor is important to know to determine if the population visiting the Air Force Museum is returning. Removal of the groups with over 11 members in the party appears to have little effect on the ratio of first time visitors to repeat visitors (Table 30 & 31). The results are fairly close to a 60:40 split. However, there were some small fluctuations. In March there were a greater number of first time visitors on the weekdays while in June the data showed first time visitors increased on the weekend.

Table 30. First Time vs. Repeat Visitors (%)

Survey	March (first/repeat)	June (first/repeat)
Week w/large groups	39.7 / 60.3	39.6 / 60.4
Week w/o large groups	41.1 / 58.9	40.0 / 60.0
Weekday	46.2 / 53.8	37.6 / 62.4
Weekend	35.8 / 64.2	42.4 / 57.6

Table 31. CIs of Repeat Visitors (%)

Survey	March	June
Week w/large groups	(54.7,65.8)	(55.1,65.6)
Week w/o large groups	(53.2,64.7)	(54.7,65.3)
Weekday	(45.7,62.0)	(55.0,69.8)
Weekend	(56.2,72.3)	(50.0,65.1)

The survey inquired as to the purpose of the visit. This question allowed the parties to indicate more than one reason for visiting the Air Force Museum, therefore multiple interests were often selected. Tables 32 and 33 give the percentage of parties responding to each category that indicated their interests. Removal of the groups with greater than 11 members made very little difference. As expected, Aviation was the primary purpose for visiting and, like the other museums mentioned earlier, education reasons were less important.

Table 32. March - Purpose of Visit (%)

Survey	Aviation	Military History	Sight-seeing	Entertain-ment	Education	Other
Week w/large group	64.9	51.32	53.3	39.4	44.1	10.6
Week w/o large group	64.9	51.2	54.0	39.3	42.5	9.1
Weekday	63.4	53.1	53.1	33.1	40.0	9.0
Weekend	66.4	49.3	55.0	45.7	45.0	9.3

Table 33. June – Purpose of Visit (%)

Survey	Aviation	Military History	Sight-seeing	Entertain-ment	Education	Other
Week w/large group	65.4	56.6	51.0	35.8	37.5	16.4
Week w/o large group	66.3	57.5	51.2	35.5	37.7	15.7
Weekday	67.5	63.9	47.0	33.7	39.2	16.9
Weekend	65.1	51.2	55.4	37.3	36.1	14.5

The original survey, conducted by the Foundation in 1996, indicated that about 88 percent of the Friends membership had military experience. Therefore question 2 on the survey asked for military service or aviation experience. This question, like the question on the purpose of the visit, allowed for more than one response. The results are displayed in Tables 34 and 35. Although not as significant as the 88 percent found in the Foundation survey, the largest group with military or aviation experience in this survey sample fell into the category of Former Military for both months.

Table 34. March - Military and Aviation Experience (%)

Survey	Current Military	Former Military	Current Military Aviation	Former Military Aviation	Other Current Aviation	Other Former Aviation
Week w/large group	11.3	33.1	3.6	10.3	7.9	6.3
Week w/o large group	10.9	31.9	3.2	9.5	8.1	6.3
Weekday	13.1	34.5	3.4	11.7	6.9	9.0
Weekend	8.6	29.3	2.9	7.1	9.3	3.6

Table 35. June - Military and Aviation Experience (%)

Survey	Current Military	Former Military	Current Military Aviation	Former Military Aviation	Other Current Aviation	Other Former Aviation
Week w/large group	7.6	45.5	5.0	20.0	7.6	7.6
Week w/o large group	7.8	45.5	5.1	19.9	7.8	7.8
Weekday	9.6	50.0	7.2	24.7	8.4	7.2
Weekend	6.0	41.0	3.0	15.1	7.2	8.4

The number of visitors who financially support the Air Force Museum, through the Friends of the Museum Membership, was very low in the sample of visitors surveyed. This low number of Friends surveyed highlights the difference between the people that actually provide financial support to the Air Force Museum and the typical visitors. As seen in Table 36, the percentage of visitors surveyed that were Friends of the Museum was fairly consistent between the two months as well as between weekday and weekend visitors. A total of only 37 Friends were surveyed in this study.

Table 36: Friends of the Museum Membership

Survey	March (% / number of surveys)	June (% / number of surveys)
Week w/large groups	6.0 / 16	7.0 / 21
Week w/o large groups	5.6 / 14	7.1 / 21
Weekday	6.4 / 8	7.8 / 11
Weekend	4.7 / 6	6.5 / 10

The IMAX is the only exhibit that charges an admission fee. Through ticket sales the Air Force Museum has access to actual attendance figures. The purpose of the question of IMAX usage on the survey was to determine the influence of the IMAX on visitors. As seen in Table 37, the parties with more than 11 in their groups minimally affected this question. Those surveyed in March consistently had just under 40 percent utilizing the IMAX while June visitors had about 50 percent IMAX usage. Once again

the CIs overlap so the difference can not be determined to be significant (Table 38). There is some question to the results in June possible having an inflated percentage because the Air Force Museum had opened a new IMAX film the week prior to the survey and a major advertising campaign was initiated.

Table 37. IMAX Usage (%)

Survey	March	June
Week w/large groups	41.8	50.2
Week w/o large groups	39.4	49.7
Weekday	39.4	51.3
Weekend	39.3	48.1

Table 38. CIs of IMAX Usage (%)

Survey	March	June
Week w/large groups	(36.2,47.5)	(44.7,55.6)
Week w/o large groups	(33.6,45.1)	(44.2,55.2)
Weekday	(31.4,47.5)	(43.4,59.2)
Weekend	(31.0,47.5)	(40.4,55.9)

The Gift Shop visitation, like the IMAX, is a possible revenue-generating source for the Air Force Museum. Since a visit to the Gift Shop does not necessarily translate to a purchase, it seemed necessary to determine how many parties visited the Gift Shop as well as how many of those parties made purchases. Table 39 shows the percentage of surveyed parties that visited the Gift Shop during their visit to the Air Force Museum, while Table 41 reflects the percentage of surveyed visitors that went to the Gift Shop *and* purchased at least one item. Table 40 and 42 show the CIs do not overlap and therefore no significance can be attributed to the differences in percentages.

Table 39. Gift Shop Visitation (%)

Survey	March	June
Week w/large groups	80.2	76.5
Week w/o large groups	79.4	76.2
Weekday	76.9	74.8
Weekend	81.9	77.4

Table 40. CIs of Gift Shop Visitation (%)

Survey	March	June
Week w/large groups	(75.7,84.7)	(71.9,81.1)
Week w/o large groups	(74.6,84.1)	(71.5,80.9)
Weekday	(70.0,83.8)	(68.0,81.7)
Weekend	(75.5,88.3)	(71.0,83.8)

Table 41. Gift Shop Purchase (%)

Survey	March	June
Week w/large groups	69.6	72.4
Week w/o large groups	67.4	72.1
Weekday	67.5	67.7
Weekend	67.4	76.2

Table 42. CIs of Gift Shop Purchase (%)

Survey	March	June
Week w/large groups	(62.9,76.2)	(66.3,78.4)
Week w/o large groups	(60.4,74.4)	(65.9,78.2)
Weekday	(57.2,77.8)	(58.5,76.9)
Weekend	(57.8,77.0)	(68.0,84.3)

As the tables show, the groups surveyed in March had a larger percentage visit the gift shop than did June. However, in March there was a lower percentage of purchases by those visitors. Groups in June showed some fluctuation between the weekday and weekend purchasing while the March visitors held fairly stable in purchasing patterns.

Volunteer members at the Air Force Museum had mentioned that they often receive inquiries as to where visitors need to go to pay the admission. Since The Air

Force Museum does not charge an admission fee, the question was posed, to the parties

being surveyed, whether or not they were aware before arriving that the admission was

free. Table 43 shows the average response for knowing that there was no cost for a visit.

About 30 percent expect to pay for the visit. All CIs overlap, so no significant difference

between groups can be determined (Table 44).

Table 43. Knew about the Free Admission (%)

Survey (% yes)	March	June
Week w/large groups	67.6	67.3
Week w/o large groups	66.3	66.8
Weekday	62.4	64.4
Weekend	70.3	69.1

Table 44. CIs of Knew about the Free Admission (%)

Survey	March	June
Week w/large groups	(62.2,72.9)	(62.2,72.3)
Week w/o large groups	(60.8,71.9)	(61.6,71.9)
Weekday	(54.4,70.4)	(57.0,71.8)
Weekend	(62.7,77.9)	(62.0,76.2)

Those knowing about the free admission, were asked if the free admission

influenced their decision to visit. The results are displayed in Table 45. Free admission

had a greater influence in March than it did in June. But the CIs overlap so no

significance can be shown between the two months (Table 46).

Table 45. Influenced by Free Admission (%)

Survey	March	June
Week w/large groups	45.0	36.1
Week w/o large groups	44.8	35.7
Weekday	47.4	31.1
Weekend	42.5	40.2

Table 46. CIs of Influenced by Free Admission (%)

Survey	March	June
Week w/large groups	(37.7,52.3)	(29.7,42.4)
Week w/o large groups	(37.3,52.4)	(29.2,42.1)
Weekday	(36.4,58.5)	(22.3,39.9)
Weekend	(32.1,52.9)	(30.9,49.5)

To ascertain if visitors were selecting to visit for particular exhibits or just the Air Force Museum in general, the question was posed with a blank in which to fill in the specific exhibit. The results in June had a larger amount of the surveyed groups arriving for a certain exhibit as seen in Table 47. Two possible contributing factors include a new IMAX movie and the arrival of a presidential aircraft the week prior to the June survey. Both exhibits received media attention. Yet the CIs overlap so there appears to be no significant difference between the months or between each month's weekdays and weekends (Table 48).

Table 47. Visiting for a Particular Exhibit (%)

Survey	March	June
Week w/large groups	13	19.6
Week w/o large groups	12.3	19.5
Weekday	13.2	19.6
Weekend	11.4	19.4

Table 48. CIs of Visiting for a Particular Exhibit (%)

Survey	March	June
Week w/large groups	(9.1,16.9)	(15.2,23.9)
Week w/o large groups	(8.4,16.2)	(15.1,23.9)
Weekday	(7.5,18.9)	(13.3,25.9)
Weekend	(5.9,16.8)	(13.3,25.5)

The pre-planning of the visit was also asked of all visitors. Both the results in March and June had similar patterns as to timing of the decision to visit the Air Force

Museum (Tables 49 and 50). The largest portion of advance planning had made the decision to visit the same day or the day prior.

Table 49. March - Planning Time Frame (%)

Survey	Today or Yesterday	1 week	2-4 weeks	over a month
Week w/large group	32.5	24.7	12.9	29.8
Week w/o large group	33.5	25.9	13.3	27.3
Weekday	30.9	31.7	12.2	25.2
Weekend	36.0	20.1	14.4	29.5

Table 50. June - Planning Time Frame (%)

Survey	Today or Yesterday	1 week	2-4 weeks	over a month
Week w/large group	33.7	21.1	12.3	32.8
Week w/o large group	33.7	21.7	12.1	32.5
Weekday	27.5	24.4	13.8	34.4
Weekend	39.9	19.0	10.4	30.7

One of the final questions asked on the survey was how the party first learned about the Air Force Museum. Clearly the majority in both months first learned of the Air Force Museum verbally. The next largest category was the "Other" which allowed for a place to write in the actual source. Tables 51 and 52 have the actual percentages by category. These categories were not necessarily intended to be advertising but were also meant to included local news reports, travel brochures, etc. The most frequently written in sources were "military service" or "lived/stationed in the area." Another commonly written category was the World Wide Web.

Table 51. March - Learned about the Museum (%)

Survey	Verbally	Brochure	Newspaper	TV	Radio	Other
Week w/large group	68.2	17.2	10.3	7.9	3.0	35.8
Week w/o large group	68.4	16.5	9.8	7.0	2.8	35.1
Weekday	71.4	17.9	11.4	6.2	2.1	36.6
Weekend	67.9	15.7	8.6	7.9	3.6	33.6

Table 52. June - Learned about the Museum (%)

Survey	Verbally	Brochure	Newspaper	TV	Radio	Other
Week w/large group	66.0	15.0	7.0	8.2	5.0	37.8
Week w/o large group	65.7	15.1	6.9	8.1	4.8	37.7
Weekday	59.0	13.9	5.4	9.0	4.8	44.0
Weekend	72.3	16.3	8.4	7.2	4.8	31.3

The final question on the survey was to inquire about any and all advertising seen by the group prior to their visit to the Air Force Museum. This question was intended to measure whether visitors were aware of advertising. Tables 53 and 54 have the percentages by category. The most common advertisement, seen by both the March and the June visitors, was in the form of brochures. Television was the second most commonly seen, again by both months. The "Other" category actually had the largest percentage. However, there were many different written answers. The most common was "road signs." Once again the World Wide Web was frequently mentioned.

Table 53. March - Advertisement (%)

Survey	Newspaper	TV	Radio	Magazine	Brochure	Other
Week w/large group	7.9	10.9	3.0	5.3	11.9	13.2
Week w/o large group	7.7	10.5	2.8	5.3	11.6	13.0
Weekday	5.5	10.3	1.4	4.8	11.0	14.5
Weekend	5.7	10.7	1.4	5.0	11.4	15.0

Table 54. June - Advertisement (%)

Survey	Newspaper	TV	Radio	Magazine	Brochure	Other
Week w/large group	7.6	11.7	4.1	7.6	13.2	13.5
Week w/o large group	7.2	11.4	3.6	7.8	13.3	13.0
Weekday	6.6	10.2	3.0	7.8	12.0	12.7
Weekend	7.8	12.7	4.2	7.8	14.5	13.3

Summary

In this section the results of the two one-week surveys were reviewed. Since there were exceptionally large parties, the analysis was accomplished with these large groups included. Then the parties with more than 11 members were removed and the analysis accomplished again. In addition the weekday and weekend surveys were separated to look for possible variations between weekday and weekend visitors. A significant difference was only seen in the average adult age but this was present in both March and June. When the results of the two months were compared a significant difference was determined only in three cases: average number of children in the party, average adult age, and education level.

V. Conclusions

Introduction

This final chapter reviews the results of each survey question and highlights the typical visitor. In addition problems encountered and lessons learned will be presented as well as recommendations for further studies.

Survey Results by Question

Question 1:

The 302 groups surveyed in March had a total of 1,543 individuals. The average number in a party was 3.65 people. There were about 2.48 adults and 1.17 children per party. Of the adults attending 60 percent were male, while 63 percent of the children were male. The adults' average age was 43.5 years old and the child's average age was 8.1. Of those who chose to answer the ethnic classification, 72.2 percent were Caucasian.

In June, the 341 groups surveyed had a total of 1,455 individuals. The average number in a party was 3.37 people. There were about 2.61 adults and 0.76 children per party. Fifty-eight percent of the adults were male and 64 percent of the children were male. The adult's average age was 49.6 years and the child's average age was 8.8. Of those who chose to answer the ethnic classification, 70.0 percent were Caucasian.

Question 2:

This question allowed for multiple answers. The most common answer for both March and June groups was the percentage of parties that had former military members. In

March, 31.9 percent of the parties had former military members, while in June, 45.5 percent were former military members.

Question 3:

This question requested the information on all party members' education level. To compare with other museums, the percentage of people with college level education or higher was captured. In March, 46.6 percent of the groups had individuals with college education or greater and June's data showed 55.5 percent.

Question 4:

The family income in each group surveyed was requested. This was question was designed categorically to reduce pressure in revealing sensitive information. The result for both months indicates the median family income falls in the category of $40,000 to $59,000.

Question 5:

Air Force Museum Foundation Membership was asked of each group. In March only 16 groups had members (6.0%) and June had 21 groups with members (7.0%).

Question 6:

The purpose of the groups' visit was inquired. More than one answer could be selected. For both months, the most popular reason for visiting the Air Force Museum was an interest in Aviation. March had a 64.9 response average and June had a 66.3 response

average. The second most common purpose for visiting in March was sightseeing (54.0%) followed by an interest in Military History (51.2%). In June, the second most common choice is Military History (57.5%) and then Sightseeing (51.2%).

Question 7:

In March, 12.3 percent of the groups attended the Air Force Museum to visit a particular exhibit or educational program. In contrast, 19.5 percent of the groups in June were visiting for a specific exhibit or educational program.

Question 8:

The gift shop was visited by 79.4 percent of the parties in March with 67.4 percent of those parties making a purchase. In June, 76.2 percent of the parties visited the gift shop and 72.1 percent made purchases.

Question 9:

For March, 39.4 percent of the groups attended the IMAX while 49.7 of the groups attended in June.

Question 10:

This question disclosed the party's zip codes which were provided to the Air Force Museum to chart the states and home regions of visitors.

Question 11:

This question focused on the non-local visitors. In March, 71.0 percent of the parties included a non-local visitor. Of the parties with out-of-town guests, 38.7 percent of the time the non-local visitors were staying less than eight hours in the area and 36.3 percent were staying in a hotel or motel. Last, 88.1 percent knew about the Air Force Museum prior to arriving in the Dayton area.

In June, 73.0 percent of the parties included a non-local visitor. Of the non-local visitors, 24.0 percent of the time the non-local visitors were staying less than eight hours in the area followed closely with 21.9 percent staying 2 days. The out-of-town guests in June were staying in a hotel or motel 40.8 percent of the time and 90.3 percent knew about the Air Force Museum prior to arriving in the Dayton area.

Question 12:

This question pertains to planning of the visit. March and June results were almost the same for the most common selected answer of planned the visit the same day or one day prior (33.5 and 33.7 percent respectively).

Question 13:

For March, 58.9 percent of the parties were repeat visitors, while in June the percentage was 60.0 percent of the parties.

Question 14:

Knowledge of the free admission was asked by this question. In March, 66.3 percent of the groups knew the admission was free and 44.8 percent of those parties were influenced by the free admission. In June, 66.8 percent of the groups knew the admission was free and 35.7 percent of those parties were influenced by the free admission.

Question 15:

Of the groups visiting in March, 68.4 percent first learned about the Air Force Museum from a verbal source. June's parties were very similar with 65.7 percent first hearing about the Air Force Museum verbally.

Question 16:

This question asked which individual in the party first suggested the visit. The choices were an adult male, an adult female, or a child. In March, 76.2 percent of the time an adult male suggested the visit. Adult females suggested the visit 19.9 percent of the time. The remaining 3.9 percent of the time a child suggested the visit. June's data were similar. Adult men suggested the visit 76.8 percent of the time, adult women 19.5 percent, and children 3.6 percent.

Question 17:

Each group was asked if any advertising was seen. The most common advertising seen was brochures followed by television. In March, 11.6 percent saw brochure

advertisements and 10.5 percent saw television advertisements. In June, 13.3 of the groups saw brochure advertisements and 11.4 saw television advertisements.

The Typical Visitor

The purpose of this study was to ascertain the motivations and behavior patterns of the typical visitor to the Air Force Museum. Like similar museum studies, the typical visitor is a conglomeration. From the survey accomplished for this study two typical visitor profiles can be developed, one for March and one for June.

The typical March visitor arrives in a party of about three. Sixty percent of the time the visitor is a male in his mid-40s. If he brings children, over 60 percent of the time the children are male and are usually about 8 years old. For the typical winter visitor, about 75 percent of the time the idea to visit is posed by an adult male. Around 70 percent of the time he tends to be Caucasian and less than half the time has some college education or higher. The typical March visitor falls in the income bracket of $40,000 to 59,999. His typical party has a 71 percent chance of containing out-of-town guests who are staying either less than 8-hours or about 2 days. A little over one-third of the typical winter out-of-town guests stay in a hotel or motel. Almost 90 percent of the time the typical March party with non-local visitors will already know about the Air Force Museum because over half will have been to the Air Force Museum before. Over two-thirds of the time the typical winter visitor will have heard about the Air Force Museum from a verbal source. Two-thirds also will know that admission is free but under half will be influenced by the free admission. The major draw for the typical March visit is an interest in Aviation followed closely by an interest in Sightseeing and

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then Military history. About 12 percent come for a specific exhibit. A little over a third have had military experience. Less than 40 percent of the typical winter visitors will go to the IMAX while almost 80 percent will visit the gift shop. Of those visiting the gift shop less than 70 percent will make a purchase. Timing of the typical March visit will either be practically spontaneous, that is over half will decide less than one week prior. And just over half the time, the typical winter visitor will have seen some form of advertising.

The typical June visitor is similar. Again the visitor will arrive in a party of about three. Just about 60 percent of the time the visitor is a male. The typical summer visitor is older than the winter visitor. He is usually about 50. He too, when bringing children, has over a 60 percent chance of the children being male and the typical June child is almost 9 years old. Like the typical March visitor, about 75 percent of the time the idea to visit is posed by an adult male. Seventy percent of the time he tends to be Caucasian but over half the time has some college education or higher. Similar to the typical March visitor, the typical June visitor falls in the income bracket of $40,000 to $59,999. His typical party has almost a 75 percent chance of containing out-of-town guests who are staying either less than 8-hours or about 2 days. About 40 percent of the out-of-town guests are staying in a hotel or motel. Over 90 percent of the time the typical winter party with non-local visitors will already know about the Air Force Museum because over almost two-thirds will have been to the Air Force Museum before. Two-thirds of the time the typical June visitor will have heard about the Air Force Museum from a verbal source. Like the typical March visitor, two-thirds also will know that admission is free but only one-third will be influenced by the free admission. The typical June visitor

is interest in Aviation and Military history followed closely by an interest in Sightseeing. In the winter almost 20 percent come for a specific exhibit. About half of the typical June visitors will have or had military experience. Almost half will go to the IMAX while about 75 percent will visit the gift shop. Of those visiting the gift shop just over 70 percent will make a purchase. Like the typical March visitor, timing will be practically spontaneous, about half will decide less than one week out. And over half the time, the typical June visitor will have seen some form of advertising.

Problems Encountered and Lessons Learned

The most prominent problem seen by the author is the difficulty with the question regarding ethnic background. In line with Air Force policy, the question was worded in the present politically correct terms. The problem was not discovered when testing the survey because all test subjects were military personnel who are aware of the word choice meanings. In addition, the intended order of the ethnic choices was to be alphabetically. However, a mix up occurred placing the category Native American ahead of Asian and Caucasian. Native American was intended to represent American Indian and Eskimos. The problem seen during survey administration was that the senior citizen generation and those with less education considered themselves Native American (assumption: they thought that since they were born in American that makes them native). Foreign visitors describing American citizens in their party commonly made this same error. The results of the survey showed around 10 percent reporting themselves as Native American. The national average is less than 7 percent and there is no large reservation or community around to account for this unusually higher number.

Another question that was poorly reported was the income brackets. In attempt to reduce the reporting hesitation categories were assigned. In the end about 15 percent did not answer the question. Many comments were made to the survey administrator that "it was none of the Museum's business." In addition, the categorical data and the fact it was group reporting did not give specific information to be of much use in analysis.

One possible solution to both of these problems would be more detailed instructions. However, the desire was to keep the survey to the front and back of one page for survey simplicity. This restriction to one sheet also posed a problem in that the backside of the page was missed on multiple occasions.

Group survey design also resulted in some difficulties. Some information such as group income and ages became more difficult with the larger groups and multiple families. Also, although close attention was paid to possible repeat surveying of groups, it was not possible to tell if parties were surveyed more than once. This is important since it could skew the data.

After seeing the responses to some of the "other" fill-in choices it was obvious that the World Wide Web should have been included as a source for learning about the Air Force Museum and for advertising.

An uncontrolled factor was advertising. Since the survey was intended to learn about advertising and its effects on visitor behavior, the optimum situation would require advertising to be constant before and during the surveying times. This was not possible. In addition the local media attention surrounding the newly acquired presidential aircraft was "free" advertising that was not foreseen. The new IMAX movie received national level advertising on one of the late-night talk shows and some national radio stations.

Additional recommendations would be to administer the survey more often. The two administrations, in March and June, gave samples of these months, months which approximated attendance during the winter and summer seasons. More surveys would allow for more detailed comparisons to be done and possibly the trends would be clearer. It might also mitigate the effects caused by advertising changes and media attention.

Recommendations for Further Study

The first recommendation, as previously mentioned, would be to conduct the survey multiple times, year round.

The second recommendation would be to conduct a survey not located on the Air Force Museum's grounds. This study focused on the typical visitor to the Air Force Museum. To better understand advertising effects, it is necessary to survey those who are exposed to the advertising to ascertain if the advertising is motivating them to visit or stay away. Therefore it is recommended that a study be accomplished off-site where non-visitors would also be surveyed. Then questions relating to why a person has not visited should be asked.

Summary

This chapter reviews the data from the survey. Each question is reviewed and the typical visitor profile is developed. The problems encountered and lessons learned were listed along with recommendations for further studies.

APPENDIX: THE AIR FORCE MUSEUM SURVEY

The Air Force Museum Visitor Survey

We are conducting this short survey in an attempt to improve the experience of the Air Force Museum. Please take a moment to complete this survey for your party. Your responses are anonymous. Thank you for your help.

ABOUT YOUR PARTY:

1. How many persons are in your party? (Indicate number including yourself)
   Number of adults_____   Number of children_____
   What ages:_____   What ages:_____
   How many adult males___, adult females___, male children___, female children___
   How many persons in your party are:
   __African American, __Native American, __Asian, __Caucasian, __Hispanic, __Other

2. Please mark ALL that apply. Is anyone in your party:
   ___Currently a member of the US Armed Forces
   ___Formerly a member of the US Armed Forces
   ___Presently involved in military aviation
   ___Formerly involved in military aviation
   ___Currently employed in aviation or aerospace (other than military)
   ___Formerly employed in aviation or aerospace (other than military)

3. Mark how many of your party are in each of the following categories:
   Less than high school   _____   Some college   _____
   Some high school   _____   College graduate   _____
   High school graduate   _____   Post-Graduate education _____

4. For each household in your party, please indicate the approximate annual income(s):
   ___Less than $20,000   ___$60,000 – 74,999
   ___$20,000 – 39,999   ___$75,000 – 99,999
   ___$40,000 – 59,999   ___$100,000 or more

5. Is anyone in your party a member of the Air Force Museum Foundation? YES or NO

PURPOSE OF YOUR VISIT:

6. Please mark ALL that apply. What influenced your party's decision to visit the Air Force Museum?
   ___Interest in aviation   ___Entertainment
   ___Interest in military history   ___Education
   ___General sightseeing   ___Other _____

7. Are you visiting today to see a particular exhibit or educational program? YES or NO
   If YES, which one _____

8. Did your party visit the gift shop? YES or NO
   If YES, did your party purchase anything? YES or NO

9. Did your party visit the IMAX? YES or NO

PLANNING YOUR VISIT:

10. What is (are) your party's residential zip code(s)? _____

11. Are you, or anyone in your party, a visitor to the Dayton area? YES or NO

    Of the visitors to the Dayton area, how long are you visiting?
    ___8 hours or less   ___3-5 days
    ___More than 8 hours but less than 24 hours   ___6-7 days
    ___1 days   ___More than 7 days
    ___2 days   ___Seasonal residents

    For overnight visitors, are you staying in a hotel or motel? YES or NO

    Did you hear about the Air Force Museum before visiting the Dayton area? YES or NO

TIMING OF YOUR VISIT:

12. How long ago did your party decide to visit the Air Force Museum?
    ___Today/Yesterday   ___Two weeks to a month ago
    ___Within the last week   ___More than a month ago

13. Is this your first visit to the Air Force Museum? YES or NO
    If NO, how many times prior to today have you visited the Museum _____

SOURCES INFLUENCING YOUR VISIT:

14. Prior to arrival at the Air Force Museum, did you know that admission was free? YES or NO
    If YES, did it influence your decision to visit the Air Force Museum? YES or NO

15. Please mark ALL that apply. How did you find out about the Air Force Museum?
    ___Word of mouth   ___TV
    ___Museum Brochure   ___Radio
    ___Newspaper   ___Other

    _____

16. Was the person who first suggested your visit to the Air Force Museum today a:
    ___Female adult
    ___Male adult
    ___Child/young adult

INFLUENCES TO VISITS:

17. Please indicate if you saw or heard advertising or other information recently for the Air Force Museum through ANY of the following media:
    ___Newspaper   ___Magazine
    ___TV   ___Brochure
    ___Radio   ___Other

    _____

To provide additional feedback, comment forms are available from the survey administrators

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Vita

Captain Charlene V. Purtee was born on 13 November 1969 in Santa Clara, California. She graduated from Capital High School, Olympia, Washington in 1988 and entered the United States Air Force Academy Preparatory School. In 1989, she entered the United States Air Force Academy in Colorado Springs, Colorado. Graduating 2 June 1993, she received her Bachelor of Science degree in Humanities and her commission into the United States Air Force.

Upon completion of the Transportation Officers Course at Lackland AFB, Texas in September 1993, Captain Purtee was assigned to the 24th Transportation Squadron, Howard AFB, Panama. During her tour, she held several positions including Officer-in-Charge of Vehicle Operations, Officer-in-Charge of Combat Readiness and Resources, and Group Executive Officer. In October 1995, she was reassigned to the 628th Air Mobility Command Squadron, Incirlik AB, Turkey where she served as Chief of Passenger Services. In May 1997, she entered the School of Logistics and Acquisition Management, Air Force Institute of Technology, Wright-Patterson AFB, Ohio. Upon graduation in September 1998, Captain Purtee will assume duties at Headquarters Air Mobility Command in Operations, Passenger Movement located at Scott AFB, Illinois.

Permanent Address: 4918 Gravelly Beach Loop NW
                              Olympia, WA 98502

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13. ABSTRACT (Maximum 200 Words)
The United States Air Force Museum, located at Wright-Patterson AFB, Ohio, provides an overview of the Air Force's aviation history, free to the public. In 1996, the Foundation, a non-profit organization that provides financial support for the display of the aviation memorabilia, attempted to determine the demographic representation of the Foundation membership. In their analysis the Foundation found that the membership represented only a small portion of the actual population that visited the Museum annually. In 1997, a second survey was accomplished to establish a cursory demographic breakout and answer a variety of questions from the visitors at the Museum. Resulting from this study was a series of issues that invited further investigation. As a follow-on study, this thesis developed a group survey to collect the necessary information to establish an in-depth assessment of the motivation and behavior patterns of the full range of museum visitors in order to determine factors that influence the individuals' visitations. Survey results indicated the typical visitor is a Caucasian male with military experience and some college education. Over 70 percent of the typical visiting groups include out-of-town guests. In addition, the visit is most often planned within one day of the trip and suggested by an adult male. The typical visitor learned about the Air Force Museum through verbal sources.

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AFIT RESEARCH ASSESSMENT

The purpose of this questionnaire is to determine the potential for current and future applications of AFIT thesis research. **Please return completed questionnaire** to: AIR FORCE INSTITUTE OF TECHNOLOGY/LAC, 2950 P STREET, WRIGHT-PATTERSON AFB OH 45433-7765. Your response is **important.** Thank you.

1. Did this research contribute to a current research project?   a. Yes   b. No

2. Do you believe this research topic is significant enough that it would have been researched (or contracted) by your organization or another agency if AFIT had not researched it?

                                                  a. Yes   b. No

3. **Please estimate** what this research would have cost in terms of manpower and dollars if it had been accomplished under contract or if it had been done in-house.

        Man Years_____ $_____

4. Whether or not you were able to establish an equivalent value for this research (in Question 3), what is your estimate of its significance?

    a. Highly   b. Significant   c. Slightly   d. Of No
       Significant   Significant   Significance

5. Comments (Please feel free to use a separate sheet for more detailed answers and include it with this form):

_____   _____
Name and Grade   Organization

_____   _____
Position or Title   Address